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Write up for NC Native Plant Society – Shinn Grant

Title: Impact of Rock-Climbing Disturbance and Microhabitat Characteristics on Cliff-Face Vegetation Communities of the Linville Gorge Wilderness Area

Cliff systems can harbor unique, diverse plant communities, such as glacial relicts and endangered biota, and are dominated by stress-tolerant, often cryptic lichens, bryophytes, and vascular plants. Rock climbing is a major source of anthropogenic disturbance to cliff ecosystems, but can vary in impact relative to surface heterogeneity. To assess the impact of climbing, cliffs at Table Rock and Hawksbill Mountain in the Linville Gorge Wilderness Area were surveyed along 39 vertical transects. I observed 42 lichen, 22 vascular plant, and 21 bryophyte species. The most common species were lichens *Lasallia papulosa*, *Lepraria neglecta*, *Physcia subtilis*, *Aspicilia cinerea*, *Xanthoparmelia conspersa*, and *Umbilicaria mammulata*; vascular plants *Selaginella tortipila* and *Hydatoca petiolaris*; and bryophytes *Campylopus tallulensis* and *Weissia controversa*. Notably, *Canoparmelia alabamensis* was collected for the first time in North Carolina and 21 other species (17 lichens, four bryophytes) were Burke county records. Species richness and diversity were most strongly related to ledge and crack surface area. Climbed plots were different and less diverse than their unclimbed counterparts. Climbing impacted lichen cover differently according to functional type, causing decreased foliose and fruticose, but increased crustose lichen cover. Climbing impacts cliffs by retarding ecological succession, resulting in abundant crustose lichens, and depauperate umbilicate foliose and fruticose lichens. Potential climbing area should be thoroughly surveyed before management decisions are made since cliff communities vary by site.